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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,889	04/05/2001	Masahide Wakisaka	N36-131337M/TH	3750

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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 08/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

Applicant(s)

09/825,889

WAKISAKA ET AL.

Examiner

Art Unit

Hai C Pham

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6 and 9-31 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7 and 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 9-13 should be designated by a legend such as --PRIOR ART-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1, 10, and 11 are objected to because of the following informalities:

Claim 1:

- Lines 4-5, "light-emitting array chips" should read --light-emitting device array chips-- to keep the consistency of the claimed terminologies.

Claim 10:

- Lines 3-4, "light-emitting array chips" should read --light-emitting device array chips-- to keep the consistency of the claimed terminologies.

Claim 11:

- Lines 2, "light-emitting array chip" should read --light-emitting device array chip--.

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Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3, 8, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3:

- The following limitation "a support member" at line 3 appears to be ambiguous in that it is not clear whether it is referred back to the support member recited in the base claim 1. The above limitation should read --*said* support member-- when it is referred back to the previously recited element.

Claim 8:

- The method claim 8 fails to provide the necessary steps based on which one can perform the assemblage of the optical write head as the method claim is intended to achieve.

Claim 9:

- Similarly, the method claim 9 lacks explicit method steps such that one can achieve the goal set forth by the method claim.

Appropriate correction is required.

Claim Duplication Warning

6. Claims **30** and **31** are objected to under 37 CFR 1.75 as being exact duplicates of claims **19** and **20**, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 6, 9-11, 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukagoshi et al. (EP 0 790 132 A2).

Tsukagoshi et al., an acknowledged prior art, discloses an optical print head comprising a substrate (1, Fig. 22), and a plurality of light-emitting device array chips (2) arranged on the substrate in a straight line or in a staggered layout (Fig. 13) so as to oppose a gradient index rod lens array (10), each of the light-emitting device array chips having a light-emitting device array (LED array 49), wherein the rod lens array, a substrate support member (84a) for supporting the substrate, and a driver circuit board (4) are fixedly held by a support member (82). Tsukagoshi et al. further teaches the support member and the substrate support member are formed from metallic material (the LED support member 84a is made of aluminum alloy while the base 82 is metallic)

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(col. 10, lines 32-59), two projections (65, 66, Fig. 19) being provided as positioning pins on the support substrate, the light-emitting device array chips being bonded to the substrate (1) bonded to a predetermined location on the substrate support member while being positioned with respect to a reference plane of the substrate support member (the reference plane being the upper surface of the LED support member 84a).

With regard to claim 10, Tsukagoshi et al. teaches in another preferred embodiment (Fig. 1) the light-emitting device array chips (2) being mounted directly on the flexible printed circuit sheet (circuit board 1).

With regard to claim 15, Tsukagoshi et al. further teaches reference position marks (projections 65, Figs. 18, 19) for specifying respective positions at which the light-emitting array chips are to be arranged being provided on the surface of the member (metallic base 35) which has rigidity and is disposed in close contact with the flexible printed circuit sheet (1).

With regard to claims 17 and 18, Tsukagoshi et al. teaches the LED support member (84a) and the lens array support member (84b) being equal in coefficient of thermal expansion (col. 11, lines 31-33).

The method claim 16 is deemed to be clearly anticipated by functions of the above structures.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3, 14, 19-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi et al. in view of Kusuda et al. (JP 11-330560).

Tsukagoshi et al. discloses all the basic limitations of the claimed invention except for the frame of the lens array being a glass plate (claims 3, 25), the light emitting array being a self-scanning-type light emitting array (claims 14, 20, 21), the first and second reference planes being on the same plane (claim 22).

Regardless, it is well known in the printing art that a rod lens array or Selfoc is composed of a plurality of lenses embedded between two glass plates. Kusuda, for example, discloses an optical print head comprising a plurality of self-scanning-type light emitting array chips (52) and the rod lens array units (56) being disposed on the same substrate and facing each other, the rod lens array units having a frame (55) being formed of a glass plate.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Tsukagoshi et al. with the aforementioned teaching of Kusuda et al. since it is known in the art to use that the self-scanning-type light emitting device array is commonly used as light sources in the optical print head.

Tsukagoshi et al. also discloses an electrophotographic printer (Fig. 3) having the above LED print head (13) to further include a photosensitive drum (11), an electrostatic charger (18), a development unit (14), a transfer unit (15), and a fixing unit (19d).

11. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi et al. in view of Kaizu et al. (U.S. 5,607,048).

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Tsukagoshi et al. discloses all the basic limitations of the claimed invention except for the flexible printed circuit having a resin layer and a copper foil, with a certain thickness.

However, Kaizu et al. discloses a light-emitting device being mounted on a flexible printed circuit board (20), which comprises a base layer (21) made of a polyimide film having a thickness of 25 μm , and conductor patterns (22) made of copper foil having a thickness of 18 μm , such that the total thickness of the flexible printed circuit board becomes 43 μm (col. 4, lines 53-62).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Tsukagoshi et al. with the aforementioned teaching of Kaizu et al. By doing so, one could provide a light and compact optical print head assembly.

Allowable Subject Matter

12. Claims 4, 5, 7, and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter: the combination as claimed, which includes in one hand the plurality of adhesive injection holes formed in the surface of the support member with which the rod lens array

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is brought into contact, the holes being arranged along a longitudinal direction of the rod lens array and being formed so as to penetrate through the support member to a reverse side thereof, and in the other hand at least two eccentric pins penetrating through the support member so as to come into contact with the substrate support member, is not suggested or made obvious by the prior art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John S. Hilten can be reached on (703) 308-0719. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



**HAI PHAM
PRIMARY EXAMINER**

July 27, 2002